General Information or Other (PAR) Event # 39236

Rep Org: GENERAL ELECTRIC COMPANY		**Notification Date / Time:** 10/01/2002 20:24	(EDT)
Supplier: GENERAL ELECTRIC COMPANY		**Event Date / Time:** 10/01/2002	(PDT)
		Last Modification: 10/01/2002	
Region: 4		**Docket #:**	
City: San Jose		**Agreement State:** Yes	
County:		**License #:**	
State: CA			
NRC Notified by: JASON S. POST		**Notifications:** PETE ESELGROTH	R1
HQ Ops Officer: MIKE NORRIS		JAY HENSON	R2
Emergency Class: NON EMERGENCY		SONIA BURGESS	R3
10 CFR Section:		KRISS KENNEDY	R4
21.21 UNSPECIFIED PARAGRAPH		WILLIAM DEAN	NRR
		VERN HODGE	NRR

PART 21.21 REPORT INVOLVING STABILITY OPTION III

"Subject: Stability Option III: Possible Successive Confirmation Count Resets

"This letter provides notification of a 60 Day Interim Report per § 21.21 (a)(2) for plants that have selected stability long-term solution Option III. The basis for this notification is that GE Nuclear Energy (GE) has not completed the evaluation of a potential problem with the algorithm that provides the licensing basis Minimum Critical Power Ratio (MCPR) Safety Limit protection for stability Option III. The algorithm determines Successive Confirmation Count (SCC) of an oscillating power signal. A reactor trip is generated when SCC and oscillation amplitude reach their trip setpoints in accordance with the Option III and reactor protection system configuration. The concern is that the oscillation period could change for an oscillation that initiates while reactor state conditions are changing rapidly (e.g., during a two-recirculation pump trip event) and cause the SCC to reset, thus delaying the reactor scram.

"GE believes that there is low potential for the MCPR Safety Limit to be violated as a result of this concern. However, a 60 Day Interim Report is required since the evaluation has not been completed. Further information is provided in the attached notification.

"(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect:

"The affected basic component is the Period Based Detection Algorithm (PBDA) of stability long-term solution Option III. The PEDA provides the licensing basis MCPR Safety Limit protection for anticipated coupled thermal hydraulic-neutronic reactor instabilities. The concern is that the Successive Confirmation Count (SCC) could reset if an oscillation develops while reactor state conditions are changing rapidly (e.g., during a two recirculation pump trip event) and delay a reactor scram beyond that assumed in the licensing basis analysis. The algorithm is more susceptible to SCC resets with a period tolerance that is near to the minimum allowed by licensing documents (e.g., 50 msec). SCC resets are less likely with higher period tolerance values (e.g., 100 to 300 msec).

IE19

General Information or Other (PAR) Event # 39236

"(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect:

"GE Nuclear Energy, San Jose, California

"(iv) Nature of the defect or failure to comply and safety hazard which is created or could be created by such defect or failure to comply:

"A reactor scram is only initiated by the PBDA when the SCC exceeds the count setpoint and the oscillation amplitude exceeds the amplitude setpoint The licensing basis is that the SCC will exceed the count setpoint before the amplitude reaches the amplitude setpoint. If the SCC resets, then the amplitude could exceed the amplitude setpoint before SCC reaches the count setpoint. This could lead to violation of the MCPR Safety Limit.

"If scram is delayed, boiling transition could be experienced on a portion of some fuel bundles. This would be a violation of a Technical Specification Safety Limit and is reportable under 10 CFR 21. However, it would not produce a significant safety hazard or threat to public health and safety.

"(v) The date on which the information of such defect or failure to comply was obtained:

"(vi) In the case of a basic component which contains a defect or failure to comply, the number and locations of all such components in use at, supplied for, or being supplied for one or more facilities or activities subject to the regulations in this part:

"A defect has not been confirmed to exist. The potentially affected plants are listed in Attachment 2.

"(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action (note, these are actions specifically associated with the identified Reportable Condition):

"GE has communicated this concern to the BWR Owners' Group Potential Issues Resolution Team (PIRT) and to the Stability Detect & Suppress Committee.

"GE is continuing to evaluate the potential for the SCC to be reset for current licensed reactor operating conditions. This effort will be completed by November 18, 2002.

"(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees:

"It is recommended that potentially affected licensees keep informed through the BWR Owners' Group. No specific plant actions are recommended at this time."

Plants listed on Attachment 2
Clinton, Brunswick 1& 2, Nine Mile Point 2, Fermi 2, Columbia, Dresden 2 & 3, LaSalle 1 & 2, Limerick 1 & 2, Peach Bottom 2 & 3, Quad Cities 1 & 2, Perry 1, Susquehanna 1 & 2, Hope Creek, Hatch 1 & 2, and Browns Ferry 1, 2 & 3.

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GE Nuclear Energy

General Electric Company
175 Curtner Ave., San Jose, CA 95125

October 1, 2002
02-07NRC.DOC
MFN 02-063

Document Control Desk
United States Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

Subject: Stability Option III: Possible Successive Confirmation Count Resets

This letter provides notification of a 60 Day Interim Report per §21.21(a)(2) for plants that have selected stability long-term solution Option III. The basis for this notification is that GE Nuclear Energy (GE) has not completed the evaluation of a potential problem with the algorithm that provides the licensing basis Minimum Critical Power Ratio (MCPR) Safety Limit protection for stability Option III. The algorithm determines Successive Confirmation Count (SCC) of an oscillating power signal. A reactor trip is generated when SCC and oscillation amplitude reach their trip setpoints in accordance with the Option III and reactor protection system configuration. The concern is that the oscillation period could change for an oscillation that initiates while reactor state conditions are changing rapidly (e.g., during a two-recirculation pump trip event) and cause the SCC to reset, thus delaying the reactor scram.

GE believes that there is low potential for the MCPR Safety Limit to be violated as a result of this concern. However, a 60 Day Interim Report is required since the evaluation has not been completed. Further information is provided in the attached notification.

If you have any questions, please call me at (408) 925-5362.

Sincerely,

Jason Post

Jason. S. Post, Manager
Engineering Quality and Safety Evaluations

October 1, 2002
02-07NRC.DOC
MFN 02-063

cc: S. D. Alexander (NRC-NRR/DISP/PSIB) Mail Stop 6 F2
G. C. Cwalina (NRC-NRR/DISP/PSIB) Mail Stop 6 F2
J. F. Klapproth (GE-NE)
H. J. Neems (GE-NE)
PRC File

Attachments:
1. 60 Day Interim Report per §21.21(a)(2)
2. Potentially Affected Plants

October 1, 2002
02-07NRC.DOC
MFN 02-063

Attachment 1 – 60 Day Interim Report per §21.21(a)(2)

(i) Name and address of the individual informing the Commission:

Jason S. Post, Manager, Engineering Quality & Safety Evaluation, GE Nuclear Energy, 175 Curtner Avenue, San Jose, CA 95125

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect:

The affected basic component is the Period Based Detection Algorithm (PBDA) of stability long-term solution Option III. The PBDA provides the licensing basis MCPR Safety Limit protection for anticipated coupled thermal hydraulic-neutronic reactor instabilities. The concern is that the Successive Confirmation Count (SCC) could reset if an oscillation develops while reactor state conditions are changing rapidly (e.g., during a two recirculation pump trip event) and delay a reactor scram beyond that assumed in the licensing basis analysis. The algorithm is more susceptible to SCC resets with a period tolerance that is near to the minimum allowed by licensing documents (e.g., 50 msec). SCC resets are less likely with higher period tolerance values (e.g., 100 to 300 msec).

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect:

GE Nuclear Energy, San Jose, California

(iv) Nature of the defect or failure to comply and safety hazard which is created or could be created by such defect or failure to comply:

A reactor scram is only initiated by the PBDA when the SCC exceeds the count setpoint and the oscillation amplitude exceeds the amplitude setpoint. The licensing basis is that the SCC will exceed the count setpoint before the amplitude reaches the amplitude setpoint. If the SCC resets, then the amplitude could exceed the amplitude setpoint before SCC reaches the count setpoint. This could lead to violation of the MCPR Safety Limit.

If scram is delayed, boiling transition could be experienced on a portion of some fuel bundles. This would be a violation of a Technical Specification Safety Limit and is reportable under 10CFR21. However, it would not produce a significant safety hazard or threat to public health and safety.

(v) The date on which the information of such defect or failure to comply was obtained:

August 2, 2002

October 1, 2002
02-07NRC.DOC
MFN 02-063

(vi) In the case of a basic component which contains a defect or failure to comply, the number and locations of all such components in use at, supplied for, or being supplied for one or more facilities or activities subject to the regulations in this part:

A defect has not been confirmed to exist. The potentially affected plants are listed in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action (note, these are actions specifically associated with the identified Reportable Condition):

GE has communicated this concern to the BWR Owners' Group Potential Issues Resolution Team (PIRT) and to the Stability Detect & Suppress Committee.

GE is continuing to evaluate the potential for the SCC to be reset for current licensed reactor operating conditions. This effort will be completed by November 18, 2002.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees:

It is recommended that potentially affected licensees keep informed through the BWR Owners' Group. No specific plant actions are recommended at this time.

October 1, 2002
02-07NRC.DOC
MFN 02-063

Attachment 2 – Potentially Affected Plants

	Utility	Plant
X	AmerGen Energy Co.	Clinton
	AmerGen Energy Co.	Oyster Creek
X	Carolina Power & Light Co.	Brunswick 1
X	Carolina Power & Light Co.	Brunswick 2
	Constellation Nuclear	Nine Mile Point 1
X	Constellation Nuclear.	Nine Mile Point 2
X	Detroit Edison Co.	Fermi 2
	Dominion Generation	Millstone 1
X	Energy Northwest	Columbia
	Entergy Nuclear Northeast	FitzPatrick
	Entergy Nuclear Northeast	Pilgrim
	Entergy Operations, Inc.	Grand Gulf
	Entergy Operations, Inc.	River Bend
	Entergy Nuclear Northeast	Vermont Yankee
	Exelon Generation Co.	CRIT Facility
X	Exelon Generation Co.	Dresden 2
X	Exelon Generation Co.	Dresden 3
X	Exelon Generation Co.	LaSalle 1
X	Exelon Generation Co.	LaSalle 2
X	Exelon Generation Co.	Limerick 1
X	Exelon Generation Co.	Limerick 2
X	Exelon Generation Co.	Peach Bottom 2
X	Exelon Generation Co.	Peach Bottom 3
X	Exelon Generation Co.	Quad Cities 1
X	Exelon Generation Co.	Quad Cities 2
X	FirstEnergy Nuclear Operating Co.	Perry 1
	Nebraska Public Power District	Cooper
	Nuclear Management Co.	Duane Arnold
	Nuclear Management Co.	Monticello
	Pooled Equipment Inventory Co.	PIM
X	PPL Susquehanna LLC.	Susquehanna 1
X	PPL Susquehanna LLC	Susquehanna 2
X	Public Service Electric & Gas Co.	Hope Creek
X	Southern Nuclear Operating Co.	Hatch 1
X	Southern Nuclear Operating Co.	Hatch 2
X	Tennessee Valley Authority	Browns Ferry 1
X	Tennessee Valley Authority	Browns Ferry 2
X	Tennessee Valley Authority	Browns Ferry 3

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	Entergy Operations, Inc.	Grand Gulf
	Entergy Operations, Inc.	River Bend
	Entergy Nuclear Northeast	Vermont Yankee
	Exelon Generation Co.	CRIT Facility
X	Exelon Generation Co.	Dresden 2
X	Exelon Generation Co.	Dresden 3
X	Exelon Generation Co.	LaSalle 1
X	Exelon Generation Co.	LaSalle 2
X	Exelon Generation Co.	Limerick 1
X	Exelon Generation Co.	Limerick 2
X	Exelon Generation Co.	Peach Bottom 2
X	Exelon Generation Co.	Peach Bottom 3
X	Exelon Generation Co.	Quad Cities 1
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